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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ARMIN KUEBELBECK

Appeal 2010-006746
Application 10/592,017
Technology Center 1700

Before CATHERINE Q. TIMM, JEFFREY T. SMITH, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 1, 2, and 6 through 28. We have jurisdiction under 35 U.S.C. § 6.

Appellant's invention relates to a process "for the production of mono-dispersed, spherical, nonporous SiO₂ particles by hydrolytic polycondensation of tetraalkoxysilanes and/or organotrialkoxysilanes."

App. Br. 2. Claim 1 is illustrative:

1. A process for the production of mono-dispersed, spherical, nonporous SiO₂ particles by hydrolytic polycondensation of tetraalkoxysilanes and/or organotrialkoxysilanes, said process comprising:

conducting said hydrolytic polycondensation of tetraalkoxysilanes and/or organotrialkoxysilanes in a medium comprising water, one or more solubilizers, and ethanolamine.

The Examiner relied on the following references in rejecting the appealed subject matter:

Unger et al.	US 4,775,520	October 4, 1988
Blizzard et al.	US 5,626,964	May 6, 1997
Anselmann et al.	US 6,302,926 B1	October 16, 2001
Trau et al.	US 2003/0124564 A1	July 3, 2003
Teller et al. ¹	EP 1 036 763 A1	September 20, 2000

¹ We rely on the machine translation of Teller made of record by the Examiner on January 22, 2010 for the teachings of the reference EP 1 036 763 A1.

Appellant requests review of the following rejections (App. Br. 3) from the Examiner's final office action:²

1. Claims 1 and 6-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Teller and Blizzard.

2. Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Teller, Blizzard and Anselmann.

3. Claims 1, 6-8, 10-18, 20-21 and 24-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Trau and Blizzard.

4. Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Trau, Blizzard, and Anselmann.

5. Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Trau, Blizzard, and Teller.

6. Claims 1-2, 7-9, 17-19, and 22-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Unger and Blizzard.

7. Claims 10-16 and 24-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Unger, Blizzard, and Trau.

² The statement of rejections reflects the rejections as presented by the Examiner and incorporates the cancellation of claims 3-5. *See Answer, generally*; App. Br. 2. We note that the Examiner withdrew the rejections based on the reference to Su as a secondary reference. Ans. 2. Accordingly, those rejections are not listed.

OPINION

*The prior art rejections*³

Process Claims

The Examiner found, and Appellant does not dispute, that Teller, Trau and Unger (hereinafter referred to collectively as primary references) teach a method of making monodispersed silica particles by hydrolyzing tetraalkoxysilane in a medium of alcohol, ammonia and water. Ans. 3, 8, 13. The Examiner also found, and Appellant does not dispute, that each of the primary references do not disclose the use of ethanolamine as a base for the hydrolysis reaction. *Id.* at 4, 9, 14.

The Examiner further found that Blizzard uses ethanolamine in the hydrolysis and condensation of tetraethoxysilane. *Id.* at 5, 9, 14. The Examiner found that ammonia and ethanolamine are functional equivalents because both compounds are used in a hydrolysis and condensation of a tetraalkoxy silane in the presence of water. *Id.* at 5, 9, 14. The Examiner concluded that it would have been obvious to one skilled in the art to use the ethanolamine of Blizzard in the process of the primary references because substitution of functional equivalents is “within the scope of the skilled artisan.” *Id.* at 5, 9-10, 14.

The dispositive issue on appeal is: Did the Examiner err in determining that a person having ordinary skill in the art would have used

³ Appellant has not argued most of the dependent claims separately. Accordingly, the dependent claims stand or fall together with independent claim 1. We will limit our discussion to independent claim 1.

the ethanolamine of Blizzard as a base in the process of each of Teller, Trau and Unger as required by the subject matter of independent claim 1?⁴

We answer this question in the affirmative; therefore, we REVERSE.

During examination, the Examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Appellant argues that Blizzard “is directed to the formation of a radiation curable silicone resin from an amine alcohol, a tetralkoxysilane, and a multifunctional acrylate” and not directed to making mono-dispersed silica particles as the primary references. App. Br. 8, 13, 18 (emphasis omitted). Appellant further argues that Blizzard “provides no indication as to how or why one would modify a process for production of mono-dispersed polysilicic acid particles.” *Id.* Appellant also argues that Blizzard does not suggest that ethanolamine can be used in place of ammonia in the completely different processes of the primary references. *Id.* at 9, 14, 19.

The Examiner responds that while Blizzard may be directed to the formation of a radiation curable silicone resin, Example 1 of Blizzard discloses the hydrolysis and condensation of tetraalkoxysilane, a process similar to the processes of the primary references, using ethanolamine as a base. Ans. 17. The Examiner further responds that ammonia and

⁴ A discussion of Anselmann is unnecessary for disposition of the present appeal. The Examiner relied upon this reference for features not related to the dispositive issue.

ethanolamine are functional equivalents because they are both used in a hydrolysis reaction. *Id.* at 19.

We agree with Appellant that Blizzard provides no suggestion or motivation as to how or why a person of ordinary skill in the art would modify the processes of the primary references so as to use ethanolamine in the production monodispersed silica particles as required by the subject matter of independent claim 1. App. Br. 8, 13, 18. We also agree with Appellant that none of the primary references or Blizzard disclose ammonia and ethanol amine as equivalent. *Id.* at 9, 14, 19.

The Examiner has not adequately explained why a person skilled in the art would have modified the hydrolysis reaction of the primary references, directed to making monodispersed silica particles, by using the ethanolamine of Blizzard as a base in the process of each of the primary references as required by the subject matter of independent claim 1. Further, the Examiner has not explained why a person skilled in the art would expect the substitution of Blizzard's ethanol amine for the ammonia in the process of the primary references would result in the formation of silica particles as required by the subject matter of claim 1. As argued by Appellant, Blizzard is directed to a different process, a process of making a radiation curable silicon resin. Even though there is an intermediate hydrolysis step in the process of Blizzard, the Examiner has pointed to no disclosure in Blizzard that shows the intermediate hydrolysis step makes silica particles. On the present record, the Examiner has failed to meet the initial burden of establishing a *prima facie* case of obviousness.

For the reasons stated above and those presented by Appellant, the

rejections of (1) claims 1 and 6-18, and 20-28 under 35 U.S.C. § 103(a) as unpatentable over Teller and Blizzard; (2) claims 1, 6-8, 10-18, 20-21 and 24-28 under 35 U.S.C. § 103(a) as unpatentable over Trau and Blizzard; and of (3) claims 1-2, 7-9, 17, 18, and 22-23 under 35 U.S.C. § 103(a) as unpatentable over Unger and Blizzard are reversed.

The remaining rejections of dependent claims 2, 10-16, and 24-26 depend on a prior art rejection based on the combination of at least one of the primary references with Blizzard, as discussed above. Accordingly, these rejections are reversed as well for the reasons given above.

Product by Process Claim 19

Claim 19 is directed to material for use as a sorption material in chromatography comprising a mono-dispersed, spherical, nonporous SiO₂ particle obtained by the process of claim 1.

With respect to the rejection over the combination of Trau, Blizzard and Teller, we agree with Appellant's argument that Trau is directed to making porous silica particles instead of the claimed nonporous particles App. Br. 13. Trau, Abstract. Accordingly, the rejection of claim 19 under 35 U.S.C. § 103(a) as unpatentable over the combination of Trau, Blizzard and Teller is reversed.⁵

With respect to the rejections over of Teller and Blizzard and of Unger and Blizzard, Appellant has not provided substantive arguments addressing these rejections. Teller and Unger are directed to mono-dispersed nonporous silica particles albeit made by a process using ammonia

⁵ In this rejection, the Examiner relied upon Teller for describing solid phase for the investigation of molecular recognition phenomena. Ans. 12.

instead of Appellants' ethanolamine. Teller Translation, para. [0006]; Unger, Abstract. Appellant has not argued that the nonporous silica particle required by the subject matter of claim 19 is different from the nonporous silica particles of the Teller and Unger. Appellant has also failed to direct us to any evidence showing that the silica particle required by the subject matter of claim 19 is different from the nonporous silica particles of the Teller and Unger.

Accordingly, the rejections of claim 19 under 35 U.S.C. § 103(a) as unpatentable over the combinations of Teller and Blizzard and of Unger and Blizzard are affirmed. Because our rationale in sustaining the rejections differs from that articulated by the Examiner, we denominate our affirmance as new grounds of rejection pursuant to 37 C.F.R. § 41.50(b).

ORDER

The rejection of claims 1 and 6-18 and 20-28 under 35 U.S.C. § 103(a) as unpatentable over Teller and Blizzard is reversed.

The rejection of claim 2 under 35 U.S.C. § 103(a) as unpatentable over Teller, Blizzard and Anselmann is reversed.

The rejection of claims 1, 6-8, 10-18, 20-21 and 24-28 under 35 U.S.C. § 103(a) as unpatentable over Trau and Blizzard is reversed.

The rejection of claim 2 under 35 U.S.C. § 103(a) as unpatentable over Trau, Blizzard and Anselmann is reversed.

The rejection of claim 19 under 35 U.S.C. § 103(a) as unpatentable over Trau, Blizzard and Teller is reversed.

The rejection of claims 1-2, 7-9, 17, 18 and 22-23 under 35 U.S.C. § 103(a) as unpatentable over Unger and Blizzard is reversed.

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The rejection of claims 10-16 and 24-26 under 35 U.S.C. § 103(a) as unpatentable over Unger, Blizzard and Trau is reversed.

A new ground of rejection of claim 19 under 35 U.S.C. § 103(a) as unpatentable over Unger and Blizzard is entered under 37 C.F.R. § 41.50(b) (2010).

A new ground of rejection of claim 19 under 35 U.S.C. § 103(a) as unpatentable over Teller and Blizzard is entered under 37 C.F.R. § 41.50(b) (2010).

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

AFFIRMED IN PART; 37 C.F.R. § 41.50(b)

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